



# ITS Public Safety

P R O G R A M



U.S. Department  
of Transportation

Federal Highway  
Administration

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## DOT Projects in Utah, Washington State Will Demonstrate Public Safety, Transportation System Integration

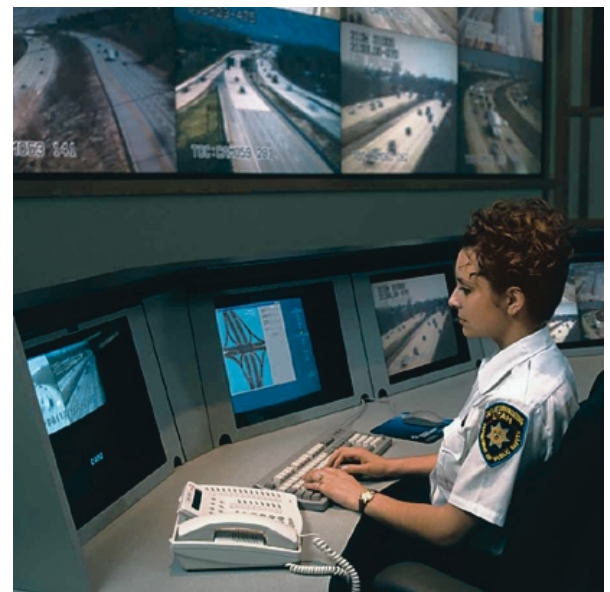
In anticipation of Homeland Security funding, many state and local public safety agencies are planning long-needed upgrades for their computer-aided dispatch (CAD) systems. Two new field operational tests (FOTs) funded by the U.S. Department of Transportation (DOT) will demonstrate the feasibility and benefits of integrating public safety CAD systems with the Advanced Traffic Management Systems (ATMS) already being used by transportation agencies in most major metropolitan areas in the United States as part of their Intelligent Transportation Systems (ITS) deployments.

CAD systems, used by law enforcement and other emergency response agencies, provide dispatchers and response units with real-time incident information. CAD systems typically track data on response unit assignments, incident address locations, equipment location and status, utility locations, and special hazards data. Integration of CAD and ITS will provide public safety agencies instant access to real-time road condition and traffic information, making it easier for emergency respond-

*Major metropolitan areas in the United States have advanced traffic management systems (ATMS) at the core of their Intelligent Transportation Systems (ITS) deployments. But ITS systems are not integrated with public safety computer-aided dispatch (CAD) systems. Most existing CAD systems are proprietary and are not designed to exchange information with CAD systems offered by other vendors, let alone with ATMS. Additional challenges are posed by variations in formats and protocols for data and for messaging, and different system standards in the transportation and public safety communities. The U.S. Department of Transportation (DOT) has recently launched two projects to demonstrate that the technical and institutional barriers to public safety and transportation system integration can be overcome.*

ers to access and manage incident scenes. Transportation agencies, in turn, can use real-time emergency dispatch information from CAD systems to more efficiently manage traffic, and other transportation-related impacts of emergency incidents.

In two projects sponsored through DOT's ITS Public Safety Program, integrated CAD / ITS systems are being built and field tested in the Seattle, Washington and Salt Lake City, Utah metropolitan areas.



Utah Department of Public Safety Dispatcher operating advanced traffic management system

The Washington State Patrol's (WSP's) upgraded CAD system, scheduled for initial installation in July 2003, will be integrated with the Washington State Department of Transportation's (WSDOT's) Internet-based secure data network, where state, regional and local agencies share information about road incidents, weather conditions, traffic delays, and other situations. Key goals of the Washington project are to demonstrate how open communication between the law enforcement and transportation agencies can improve emergency response and traveler information distribution without placing additional burdens on the already-busy emergency response and radio dispatch staffs.

"This is a great opportunity for the Department of Transportation and Washington State Patrol to work together to improve roadway condition reports for the traveling public," Washington State Transportation Secretary Doug MacDonald said. "Consistent and timely information delivered through our traveler information systems will help save lives and make the most efficient use of our highways."

The Utah Department of Transportation (UDOT) CommuterLink ATMS system was previously integrated with the Utah Department of Public Safety's (UDPS's) CAD system in a test mode. The DOT funding will be used to enhance and expand this integration to include several other CAD systems within the Salt Lake Valley. The key goal of the Utah project will be to define and develop a common ATMS message set that can be easily integrated by

CAD vendors, without affecting their proprietary products or other sensitive information. This level of integration will require an unprecedented degree of collaboration among several independent CAD vendors. The project also will mark the first time that integration and electronic transfer of data has been accomplished linking such a wide variety of emergency management centers with a Statewide Traffic Management Center.

### Utah Will Integrate Three CAD Platforms, ATMS, AVL and GIS

Utah will build on the the solid existing institutional relationships among state and regional public safety and transportation agencies to integrate and share a wide range of emergency response and traffic management technologies. In addition to UDOT and UDPS, partners in the Utah project include the Valley Emergency Communications Center in Salt Lake County; the Salt Lake City Fire Department; the Salt Lake

The key goal of the Utah project is to demonstrate that a common message set, structured in a uniform and open format, can be implemented so that each agency receives only useful and relevant information.



Valley Emergency Communications Center, Salt Lake County

City Police Department; the Utah Transit Authority; four CAD vendors who have provided the legacy systems used by project partners—Computer Information Systems, Inc.; Spillman; Versaterm; and FDM Software LTD—and TransCore, the UDOT contractor for systems management and integration. Components of Utah's CAD/ITS system will include:

- **Enhanced Message / Data Set Functionality.** Automated data sharing will be structured so that each agency will receive only relevant and useful information. To minimize information overload, a receiving agency will be able to select the type of information they wish to receive. Sending agencies will have the ability to define filters to prevent the distribution of sensitive information. Development of the message sets will be based on the most recent IEEE 1512 standards. To facilitate use of the message sets elsewhere, they will be designed with an open architecture approach.
- **AVL Integration.** The integrated CAD/ITS system will provide several additional tools to help

the partners improve their daily operation. Automated Vehicle Location (AVL) allows transportation and public safety agencies to track the locations of all their response units. Integrating and sharing AVL data will provide many benefits to all of the dispatch agencies. For example, snow-plow locations can be conveyed to all field units concerned with roadway conditions.

■ **GIS Integration.**

Coupled closely with AVL, Geographic Information System (GIS) capability will provide dispatching agencies with real-time information for route guidance, estimate of arrivals, and identification of closest response units. Transportation operations managers can use the same information for severity management and incident tracking.

- **CAD-to-CAD / CAD-to-ATMS Infrastructure.** Upon completion of the Utah FOT, dispatchers and DOT operations personnel will be able to send messages and incident status updates to one another with a simple click of the mouse. This automatic and seamless operation

Key goals of the Washington project are to demonstrate how open communication between the law enforcement and transportation agencies can improve emergency response and traveler information distribution without placing additional burdens on the already-busy emergency response and radio dispatch staffs.

will eliminate the need to re-enter data or to make telephone calls. All the users will have access to more incident information, more quickly. In the emergency management world, this translates to saved lives, time, and money, and reduced traffic delay.

## Washington System is Internet-Based

State Patrol dispatchers throughout Washington will share a common platform for the first time when the WSP's upgraded CAD system is

brought on-line later this year. The newly procured CAD system will output information using a Universal

Data Transfer (UDT) capability. The system will be installed in one test region for shakedown before going statewide. Target date for launch in the test region is July 2003.

The Condition Acquisition and Reporting System (CARS) is an Internet-based system that allows state, local and regional agencies to collect and share information regarding road incidents, weather conditions, traffic delays and other situations. CARS is based on ITS standards and exchanges data using Extensible Markup Language (XML). CARS data is used to coordinate roadway response and supplies a portion of the traveler information content in WSDOT's 511 travel information system and Internet pages. Created by Castle-Rock Consultants, one of the DOT project partners, CARS is used as the basis for 511 travel information reporting by eight states in addition to Washington.

WSDOT plans to integrate CARS with the WSP CAD system by creating new systems integration software that has the following components:

- **Primary Alert.** A direct line of communication from WSP to WSDOT. Within one minute from the time an event is transferred from the WSP CAD system, a filtered report will appear in the WSDOT CARS system that includes on-screen map displays of the



Seattle Traffic System Management Center

## Active Incidents

updated: 5/4/2003 11:00:35 PM

### Legend

Salt Lake County Highway Patrol

Utah County Highway Patrol

Utah Dept of Transportation

Time	Location	City	Activity	Agency	Unit	Status
22:56	4000 S Redwood Rd Sb		Out On Violator	Salt Lake County UHP	00000464	Sobriety
22:50	10600 S I15 SB	Sandy	Back Up	Salt Lake County UHP	00000449	DISP
22:28	800 S 900 W		Arrest	Salt Lake County UHP	00000471	Jail
22:18	9000 S I15 SB	Sandy	Assist Motorist	Salt Lake County UHP	00000060	Scene
21:58	14600 S I15 Eb		1 Of 2 Red Out	UDOT	SIGNAL10	DISP
21:47	2200 W 3500 S	West Valley City	Misc Signal Problem	UDOT	DOT5	DISP
18:59	4100 S I215 NB	Taylorville	Barrier Problem	UDOT	DOT8	DISP
18:57	7200 S I15 OFr SB	Midvale	Sign Down / General	UDOT	DOT9	Enroute
18:30	14800 S I15 OFR SB		Misc Signal Problem	UDOT	SIGNAL9	DISP
16:04	6 Mp I215S EB	Midvale	Barrier Problem	UDOT	DOT6	Enroute
13:00	400 E 800 N Eb	Orem	1 Of 2 Red Out	UDOT	SIGNAL5	DISP
07:18	6100 S Vanwinkle Expy	Salt Lake County	1 Of 2 Red Out	UDOT	TOC1	DISP
04:46	8000 S I15 NB	Sandy	Debris In Road	Salt Lake County UHP	DOT7	Enroute
22:39	1700 S Redwood Rd Nb		Twisted Signal Head	UDOT	SIGNAL7	DISP
16:09	293 MP I15 OFR SB	Draper	Sign Down / General	UDOT		

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incident. The filters will ensure that the law enforcement agency releases only necessary and appropriate information to the transportation agency, and that privacy and security concerns are addressed.

- **Response Support.** Information to assist the WSP dispatchers in providing the most efficient response to the incident location is provided. Traffic, construction, or adverse weather conditions that could affect the troopers' response is noted on a separate web page that is linked to and from the WSP CAD system.

- **Secondary Alert.** A direct line of communication to secondary responders, including Emergency Medical Services (EMS), towing and recovery service providers, and utility companies. Secondary Alert transfers incident information to responders about events in the WSP CAD system and the WSDOT CARS system. Skagit County EMS is partnering with WSDOT and WSP in the DOT project. Towing and recovery services already are integrated into incident response operations through a three-party agreement with WSDOT and WSP.